

REMARKS

The Office Action dated June 3, 2004, has been received and carefully noted. The above amendments to the title, specification, and claims, and the following remarks, are submitted as a full and complete response thereto.

The Title was amended to be more descriptive. The specification was amended to resolve informalities. Claims 17-19, 21, 23 25, 26 and 29-31 were amended to resolve informalities. No new matter was added. Applicants note that the amendments were not made with regard to any statutory rejections and that the claims are entitled to their full range of equivalents. Thus, claims 17-31 are pending in the present application, and respectfully are submitted for consideration.

As a preliminary matter, the Office Action indicated that claims 18-26, 28, 30 and 31 contained allowable subject matter and would be allowable if rewritten to be in independent form, including all of the limitations of the base claim and any intervening claims, and if rewritten to overcome any objections or rejections set forth in the Office Action. Applicants acknowledge with appreciation the finding of allowable subject matter.

The Title was objected to as allegedly not being descriptive. Applicants have amended the Title to more descriptive. Thus, the objection is rendered moot.

The specification was objected to because of informalities. Applicants have amended the specification to resolve the informalities. Thus, the objection is rendered moot.

Claims 17, 18-19, 21, 25 and 30 were objected to because of informalities. The claims were amended to resolve the informalities. Thus, the objection is rendered moot.

Claims 17, 27 and 29 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,729,129 (Acker). The Office Action took the position that the

cited reference taught each and every element of claims 17, 27 and 29. Applicants respectfully submit that the cited reference does not disclose or suggest all the features of any of the presently pending claims.

Claim 17, upon which claims 27 and 29 are dependent, presently recites a method for determining the location and/or orientation of an object in a predetermined coordinate system, in which method in the object there is arranged a set of signal sources in a known manner in relation to the coordinate system of the object. The method includes transmitting a predetermined signal from the signal sources. The method also includes receiving the signal transmitted from the signal sources with a receiver which comprises signal receivers. The method also includes computing the location and/or orientation of the object based on received amplitudes of the signals. The method also includes determining the amplitudes of the received signals, the amplitudes being independent of each other, by computationally taking into account the correlation between the transmitted signals, the transmitted signals being transmitted simultaneously and having arbitrary waveforms. The method also includes determining each signal source separately from the independent amplitudes. The method also includes computing the location and/or orientation of the object at the time interval being examined based on the independent amplitude distributions associated with the signal sources by adjusting numerical amplitudes of the signal sources to the received amplitudes measured using the receiver. The adjusting the numerical amplitudes performed by setting the geometrical free parameters of the signal sources and/or of the receiver to values by which the difference between the calculated and measured amplitude distributions is at its smallest.

As discussed in the specification, examples of the present invention enable time domain processing of transmitted signals. Thus, the amplitudes of known sources of interference are

estimated, in addition to the transmitter signals. An interfering effect may be removed. Examples of the present invention enable the estimation of signal components that differ from the actual signal shapes to be estimated that are generated by transmitters or known sources of interference. A locating method is provided that is expedient and can be used in various measurement situations. It is respectfully submitted that the cited reference of Acker fails to disclose or suggest the elements of any of the presently pending claims. Therefore, the cited reference fails to provide the critical and unobvious advantages discussed above.

Acker relates to a magnetic location system with feedback adjustment of a magnetic field generator. Acker describes adjusting signal strengths of signals transmitted with transmitters so that receivers receive as strong a signal as possible while staying below their dynamic upper limit. Current is supplied to the coils that are adjusted to assure that the sensors receive fields within a preselected range of magnitudes. The transmitters are activated one by one, or the transmitters are activated simultaneously in various frequencies, so that signals associated with various frequencies are separated with analog or digital filtering methods. Acker, however, fails to disclose or suggest the features of determining the amplitudes of the received signals, wherein the amplitudes are independent of each other, by computationally taking into account the correlation between the transmitted signals, the transmitted signals being transmitted simultaneously and having arbitrary waveforms, and computing the location and/or orientation of the object at the time interval being examined based on the independent amplitude distributions associated with the signal sources.

In contrast, claim 17 recites “determining the amplitudes of the received signals, said amplitudes being independent of each other, by computationally taking into account the correlation between the transmitted signals, said transmitted signals being transmitted

simultaneously and having arbitrary waveforms,” and “computing the location and/or orientation of the object at the time interval being examined based on the independent amplitude distributions associated with the signal sources by adjusting numerical amplitudes of the signal sources to the received amplitudes measured using the receiver.” Applicants respectfully submit that Acker fails to disclose or suggest at least these features of the presently pending claims.

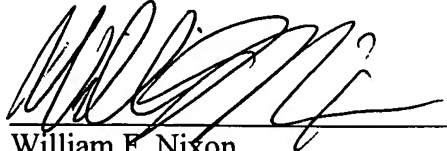
Acker does not disclose or suggest taking into account correlation between time domain waveforms of transmitted signals. As recited in claim 17, the location and/or orientation of the object is computed at the time interval. Acker does not disclose or suggest a location being computed at a time interval. As noted above, the transmitters of Acker are activated at various frequencies so that the signals associated with various frequencies are separated with filtering methods. This aspect of Acker does not disclose or suggest processing in the time domain. Therefore, Acker does not disclose or suggest all the features recited in claim 17, as noted above. Claims 27 and 29 also are allowable at least for the reasons discussed above, and because claims 27 and 29 recite subject matter in addition to that claimed in claim 17. Applicants respectfully request that the anticipation rejection be withdrawn.

It is submitted that each of claims 17-31 recite subject matter that is neither disclosed nor suggested by the cited reference. It is therefore respectfully requested that claims 17, 27 and 29 be allowed in addition to the claims already found to contain allowable subject and that this application be passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'W.F. Nixon', written over a horizontal line.

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